

## SEQUENCE LISTING

5 <110> Herr, John C.  
Norton, Elizabeth J.  
Deikman, Alan B.

10 <120> Recombinant Antibody Directed Against Human Sperm  
Antigen

<130> 00415-02

15 <140>  
<141>

<150> 60/145,512  
<151> 1999-07-23

20 <160> 18

<170> PatentIn Ver. 2.1

25 <210> 1  
<211> 116  
<212> PRT  
<213> Mus musculus

<400> 1

30 Asp Ile Glu Leu Thr Gln Ser Pro Phe Ser Leu Pro Val Ser Leu Gly  
1 5 10 15

Gly Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser  
20 25 30

35 Asn Arg Asp Thr Tyr Leu His Trp Phe Leu Gln Lys Pro Gly Gln Ser  
35 40 45

Pro Glu Leu Leu Ile Tyr Arg Val Ser Asn Arg Phe Ser Gly Val Pro  
40 50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile  
65 70 75 80

Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Ser Gln Ser  
85 90 95

5 Thr His Val Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys  
100 105 110

Arg Ala Ala Ala  
115

10

<210> 2  
<211> 348  
<212> DNA  
15 <213> Mus musculus

<400> 2  
gacatcgagc tcactcagtc tccattctcc ctgcctgtca gtcttggagg tccagcctcc 60  
20 atctcttgca gatctagtca gagtcttgta cacagtaata gagacactta ttacattgg 120  
ttcctgcaga agccaggcca gtctccagag ctctgatct acagagtttc caaccgattt 180  
tctgggggtcc cagacagggt cagtggcagt ggatcaggga cagatttcac actcaagatc 240  
25 agcagagtgg aggctgagga tctgggagtt tatttctgtt ctcaaagtac acatgttcca 300  
ttcacgttcg gctcggggac caagctggaa atcaaacggg cggccgca 348

30

<210> 3  
<211> 118  
<212> PRT  
35 <213> Mus musculus

<400> 3  
Gln Val Lys Leu Gln Gln Pro Gly Ser Glu Pro Val Arg Pro Gly Ala  
1 5 10 15  
40 Ser Val Lys Val Ser Cys Arg Ala Ser Gly Tyr Lys Phe Thr Thr Tyr  
20 25 30  
Trp Met His Trp Val Arg Gln Arg Pro Gly Gln Gly Pro Glu Trp Ile  
45 35 40 45

-3-

Gly Asp Ile Tyr Pro Gly Ser Gly Asp Ser Asn Tyr Asp Val Lys Phe  
 50 55 60

5 Lys Asn Lys Ala Thr Leu Thr Val Asp Thr Ser Ser Ser Thr Val Tyr  
 65 70 75 80

Ile Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
 85 90 95

10 Ala Arg Gly Asp Tyr Gly Cys Pro Phe Val Tyr Trp Gly Gln Gly Thr  
 100 105 110

Thr Val Thr Val Ser Ser  
 15 115

<210> 4  
 <211> 354  
 20 <212> DNA  
 <213> Mus musculus

<400> 4  
 caggtgaaac tgcagcaacc tgggtctgaa ccggtgaggc ctggagcttc agtgaaggtg 60  
 25 tcctgcaggg cttctggcta caaattcacc acctactgga tgcactgggt gaggcagagg 120  
 cctggacaag gccctgagtg gattggagat atttatcctg gtagtgggtga ttctaactac 180  
 30 gatgtgaagt tcaagaacaa ggccacactg actgtagaca catcctccag cacagtttac 240  
 atacaactca gcagcctgac atctgaggac tccgcggtct attactgtgc aagaggggac 300  
 tatggttgcc cttttgttta ctggggccaa ggcaccacgg tcacogtctc cagt 354  
 35

<210> 5  
 <211> 15  
 40 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:peptide linker  
 45

<400> 5  
 Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
 1 5 10 15  
 5

<210> 6  
 <211> 100  
 <212> DNA  
 10 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PCR primer

15 <400> 6  
 ggcaccacgg tcaccgtctc cagtggcggc ggcggcagcg gtggtggtgg ttctgggggc 60  
 ggcggcagcg acatcgagct cactcagtct ccattctccc 100  
 20

<210> 7  
 <211> 100  
 <212> DNA  
 25 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PCR primer

30 <400> 7  
 gggagaatgg agactgagtg agctcgatgt cgctgccgcc gccccagaa ccaccaccac 60  
 cgctgccgcc gccgccactg gagacggtga ccgtggtgcc 100  
 35

<210> 8  
 <211> 264  
 <212> PRT  
 40 <213> Mus musculus

<400> 8  
 Met Ala Gln Val Lys Leu Gln Gln Pro Gly Ser Glu Pro Val Arg Pro  
 1 5 10 15  
 45

Gly Ala Ser Val Lys Val Ser Cys Arg Ala Ser Gly Tyr Lys Phe Thr  
                     20                    25                    30  
 5 Thr Tyr Trp Met His Trp Val Arg Gln Arg Pro Gly Gln Gly Pro Glu  
                     35                    40                    45  
 Trp Ile Gly Asp Ile Tyr Pro Gly Ser Gly Asp Ser Asn Tyr Asp Val  
                     50                    55                    60  
 10 Lys Phe Lys Asn Lys Ala Thr Leu Thr Val Asp Thr Ser Ser Ser Thr  
                     65                    70                    75                    80  
 Val Tyr Ile Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr  
 15                    85                    90                    95  
 Tyr Cys Ala Arg Gly Asp Tyr Gly Cys Pro Phe Val Tyr Trp Gly Gln  
                     100                    105                    110  
 20 Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly  
                     115                    120                    125  
 Gly Ser Gly Gly Gly Gly Ser Asp Ile Glu Leu Thr Gln Ser Pro Phe  
                     130                    135                    140  
 25 Ser Leu Pro Val Ser Leu Gly Gly Pro Ala Ser Ile Ser Cys Arg Ser  
                     145                    150                    155                    160  
 Ser Gln Ser Leu Val His Ser Asn Arg Asp Thr Tyr Leu His Trp Phe  
 30                    165                    170                    175  
 Leu Gln Lys Pro Gly Gln Ser Pro Glu Leu Leu Ile Tyr Arg Val Ser  
                     180                    185                    190  
 35 Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly  
                     195                    200                    205  
 Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly  
                     210                    215                    220  
 40 Val Tyr Phe Cys Ser Gln Ser Thr His Val Pro Phe Thr Phe Gly Ser  
                     225                    230                    235                    240  
 Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala Gly Ala Pro Val Pro  
 45                    245                    250                    255

Tyr Pro Asp Pro Leu Glu Pro Arg  
260

5

&lt;210&gt; 9

&lt;211&gt; 792

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

10

&lt;400&gt; 9

atggcccagg tgaaactgca gcaacctggg tctgaaccgg tgaggcctgg agcttcagtg 60

aaggtgtcct gcagggcttc tggctacaaa ttcaccacct actggatgca ctgggtgagg 120

15

cagaggcctg gacaaggccc tgagtggatt ggagatattt atcctggtag tgggtgattct 180

aactacgatg tgaagttcaa gaacaaggcc aactgactg tagacacatc ctccagcaca 240

20

gtttacatac aactcagcag cctgacatct gaggactccg cggctctatta ctgtgcaaga 300

ggggactatg gttgcccttt tgtttactgg ggccaaggca ccacggtcac cgtctccagt 360

ggcggcgggc gcagcgggtg tgggtggttct gggggcgggc gcagcgacat cgagctcact 420

25

cagtctccat tctccctgcc tgtcagtctt ggaggtccag cctccatctc ttgcagatct 480

agtcagagtc ttgtacacag taatagagac acttatttac attggttcct gcagaagcca 540

30

ggccagtctc cagagctcct gatctacaga gtttccaacc gattttcttg ggtcccagac 600

aggttcagtg gcagtggatc agggacagat ttcacactca agatcagcag agtggaggct 660

gaggatctgg gagtttattt ctgtttctcaa agtacacatg ttccattcac gttcggctcg 720

35

gggaccaagc tggaaatcaa acgggcggcc gcaggtgcgc cggtgccgta tccggatccg 780

ctggaaccgc gt 792

40

&lt;210&gt; 10

&lt;211&gt; 792

&lt;212&gt; DNA

45

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: synthetic  
sequence substituting bacterial codons for mouse  
codons

5

&lt;400&gt; 10

atggcccagg tgaaactgca gcaacctggg tctgaaccgg tgcgccttgg cgcttcagtg 60  
10 aaggtgtcct gccgcgcttc tggctacaaa ttcaccacct actggatgca ctgggtgctc 120  
cagcgccctg gccaaaggccc tgagtggatt ggcatatatt atcctggtag tggtgattct 180  
aactacgatg tgaagttcaa gaacaaggcc aactgactg tagacacatc ctccagcaca 240  
15 gtttacatcc aactcagcag cctgacatct gaggactccg cggctctatta ctgtgcaaga 300  
ggggactatg gttgcctttt tgtttactgg ggccaaggca ccacggtcac cgtctccagt 360  
20 ggcgggcgcg gcagcggtgg tgggtggttct gggggcgggc gcagcgacat cgagctcact 420  
cagtctccat tctccctgcc tgtcagtctt ggcatccag cctccatctc ttgccgtctc 480  
agtcagagtc ttgtacacag taatcgcgac acctatctgc attggttcct gcagaagcca 540  
25 ggccagtctc cagagctcct gatctaccgc gtttccaacc gcttttcttg ggtcccagac 600  
cgcttcagtg gcagtggctc agggacagat ttcacactca agatcagcag cgtggaggct 660  
30 gaggatctgg gcgtttatct ctgttctcaa agtacacatg ttccattcac gttcggctcg 720  
gggaccaagc tggaaatcaa acgggcggcc gcaggtgctc cggtgccgta tccggatccg 780  
ctggaaccgc gt 792

35

&lt;210&gt; 11

&lt;211&gt; 251

40

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: synthetic  
sequence substituting amino acids in the natural

45

-8-

mouse protein to "humanize" the protein

```

<400> 11
Met Ala Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Val Lys Lys Pro
5      1              5              10              15

Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr
              20              25              30

10 Thr Tyr Trp Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu
      35              40              45

Trp Ile Gly Asp Ile Tyr Pro Gly Ser Gly Asp Ser Asn Tyr Asp Val
      50              55              60

15 Lys Phe Lys Asn Arg Val Thr Ile Thr Ala Asp Thr Ser Thr Ser Thr
      65              70              75              80

Ala Tyr Met Gln Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr
20              85              90              95

Tyr Cys Ala Arg Gly Asp Tyr Gly Cys Pro Phe Val Tyr Trp Gly Gln
      100              105              110

25 Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly
      115              120              125

Gly Ser Gly Gly Gly Gly Ser Asp Ile Val Met Thr Gln Ser Pro Ser
      130              135              140

30 Ser Leu Pro Val Ser Val Gly Asp Pro Ala Ser Ile Ser Cys Arg Ser
      145              150              155              160

Ser Gln Ser Leu Val His Ser Asn Arg Asp Thr Tyr Leu His Trp Tyr
35              165              170              175

Leu Gln Lys Pro Gly Gln Ser Pro Gln Leu Leu Ile Tyr Arg Val Ser
      180              185              190

40 Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly
      195              200              205

Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly
      210              215              220

45

```



Val Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Phe Thr Phe Gly Gln  
 225 230 235 240

5 Gly Thr Lys Val Glu Ile Lys Arg Ala Ala Ala  
 245 250

<210> 12  
 10 <211> 753  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 15 <223> Description of Artificial Sequence: synthetic  
 sequence substituting human codons for mouse  
 codons

<400> 12  
 20 atggcacaag ttcagttaca acagtctggt gcagaagtta aaaaacctgg tgcttctggt 60  
 aaagtttctt gcaaagcttc tggttatacc tttaccacgt attggatgca ttgggttcgt 120  
 caagctcctg gtcaaggctc ggaatggatt ggtgatattt atcctgggtc tggtgattct 180  
 25 aattatgatg ttaaatttaa aaatcgtgtt accattaccg ctgataacct tacctctacc 240  
 gcttatatgc aattatctag cttacgttct gaagataccg cagtttatta ttgtgcacgt 300  
 30 ggtgattatg gttgtccttt tgtttattgg ggtcaaggca ccacgggtac cgtttctagc 360  
 ggtggcggcg gttctggcgg tggcggtagc ggcggtggtg gctctgatat tgttatgacc 420  
 caatctcctt ctagcttacc tgtttctggt ggtgatcctg ctagcatttc ttgtcgttct 480  
 35 agccaatctt tagttcatag caatcgtgat acctatttac attggtatct gcagaaacct 540  
 ggtcaaagcc ctcaattact gatttatcgt gttagcaatc gtttttagcgg tgttcctgat 600  
 40 cgtttttctg gtagcgggtc tggtagcgat ttacggttaa aaatttctcg tgttgaagct 660  
 gaggatggtg gtgtttatta ttgttctcaa agcaccatg ttccttttac gttegggtcaa 720  
 ggtaccaaag ttgaaattaa acgtgctgca gct 753  
 45

<210> 13  
 <211> 45  
 5 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:nucleic acid  
 10 linker

<400> 13  
 ggcggcggcg gcagcgggtgg tgggtggttct gggggcggcg gcagc 45  
 15

<210> 14  
 <211> 13  
 <212> PRT  
 20 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:commercially  
 available petide antigen  
 25

<400> 14  
 Gly Ala Pro Val Pro Tyr Pro Asp Pro Leu Glu Pro Arg  
 1 5 10

30  
 <210> 15  
 <211> 251  
 <212> PRT  
 <213> Mus musculus

35  
 <400> 15  
 Met Ala Gln Val Lys Leu Gln Gln Pro Gly Ser Glu Pro Val Arg Pro  
 1 5 10 15

40 Gly Ala Ser Val Lys Val Ser Cys Arg Ala Ser Gly Tyr Lys Phe Thr  
 20 25 30

Thr Tyr Trp Met His Trp Val Arg Gln Arg Pro Gly Gln Gly Pro Glu  
 35 40 45  
 45

-11-

Trp Ile Gly Asp Ile Tyr Pro Gly Ser Gly Asp Ser Asn Tyr Asp Val  
 50 55 60

5 Lys Phe Lys Asn Lys Ala Thr Leu Thr Val Asp Thr Ser Ser Ser Thr  
 65 70 75 80

Val Tyr Ile Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr  
 85 90 95

10 Tyr Cys Ala Arg Gly Asp Tyr Gly Cys Pro Phe Val Tyr Trp Gly Gln  
 100 105 110

Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly  
 15 115 120 125

Gly Ser Gly Gly Gly Gly Ser Asp Ile Glu Leu Thr Gln Ser Pro Phe  
 130 135 140

20 Ser Leu Pro Val Ser Leu Gly Gly Pro Ala Ser Ile Ser Cys Arg Ser  
 145 150 155 160

Ser Gln Ser Leu Val His Ser Asn Arg Asp Thr Tyr Leu His Trp Phe  
 165 170 175

25 Leu Gln Lys Pro Gly Gln Ser Pro Glu Leu Leu Ile Tyr Arg Val Ser  
 180 185 190

Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly  
 30 195 200 205

Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly  
 210 215 220

35 Val Tyr Phe Cys Ser Gln Ser Thr His Val Pro Phe Thr Phe Gly Ser  
 225 230 235 240

Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala  
 245 250

40

<210> 16  
 <211> 753  
 <212> DNA  
 45 <213> Mus musculus

-12-

<400> 16  
 atggcccagg tgaaactgca gcaacctggg tctgaaccgg tgaggcctgg agcttcagtg 60  
 5 aaggtgtcct gcagggcttc tggctacaaa ttcaccacct actggatgca ctgggtgagg 120  
 cagaggcctg gacaaggccc tgagtggatt ggagatatatt atcctggtag tgggtgattct 180  
 aactacgatg tgaagttcaa gaacaaggcc aactgactg tagacacatc ctccagcaca 240  
 10 gtttacatac aactcagcag cctgacatct gaggactccg cgggtctatta ctgtgcaaga 300  
 ggggactatg gttgcccttt tgtttactgg ggccaaggca ccacggtcac cgtctccagt 360  
 15 ggcggcgggc gcagcgggtg tgggtggttct gggggcgggc gcagcgacat cgagctcact 420  
 cagtctccat tctccctgcc tgtcagtctt ggaggtccag cctccatctc ttgcagatct 480  
 agtcagagtc ttgtacacag taatagagac acttatttac attggttcct gcagaagcca 540  
 20 ggccagtctc cagagctcct gatctacaga gtttccaacc gattttcttg ggtcccagac 600  
 aggttcagtg gcagtggatc agggacagat ttcacactca agatcagcag agtggaggct 660  
 25 gaggatctgg gagtttattt ctgttctcaa agtacacatg ttccattcac gttcggctcg 720  
 gggaccaagc tggaaatcaa acgggcggcc gca 753

30

<210> 17  
 <211> 786  
 <212> DNA  
 <213> Artificial Sequence

35

<220>  
 <223> Description of Artificial Sequence: synthetic  
 sequence substituting bacterial codons for mouse  
 codons

40

<400> 17  
 caggtgaaac tgcagcaacc tgggtctgaa ccggtgcgcc ctggcgcttc agtgaagggtg 60  
 tcttgccgcg cttctggcta caaattcacc acctactgga tgcaactgggt gcgccagcgc 120

45

-13-

cctggccaag gccctgagtg gattggcgat atttatcctg gtagtggtga ttctaactac 180  
gatgtgaagt tcaagaacaa ggccacactg actgtagaca catcctccag cacagtttac 240  
5 atccaactca gcagcctgac atctgaggac tccgcggtct attactgtgc aagaggggac 300  
tatggttgcc cttttgttta ctggggccaa ggcaccacgg tcaccgtctc cagtggcggc 360  
ggcggcagcg gtggtggtgg ttctgggggc ggcggcagcg acatcgagct cactcagtct 420  
10 ccattctccc tgctgtcag tcttggcgat ccagcctcca tctcttgccg ctctagtcag 480  
agtcttgtag acagtaatcg cgacacctat ctgcattggt tctgcagaa gccaggccag 540  
15 tctccagagc tctgatcta ccgcgtttcc aaccgctttt ctgggggtccc agaccgcttc 600  
agtggcagtg gctcagggac agatttcaca ctcaagatca gcagcgtgga ggctgaggat 660  
ctgggcgttt atttctgttc tcaaagtaca catgttccat tcacgttcgg ctcggggacc 720  
20 aagctggaaa tcaaacgggc ggccgcaggt gcgccggtgc cgtatccgga tccgctggaa 780  
ccgcgt 786

25

<210> 18  
<211> 7  
<212> PRT  
30 <213> Homo sapiens

<400> 18  
Gly Gln Asn Asp Thr Ser Gln  
1 5

35